

1           1.     A system, comprising:  
2                 a signal generator;  
3                 impedance mismatch hardware coupled to the signal generator, wherein  
4 the impedance mismatch hardware includes at least one impedance; and  
5                 a controller coupled to the impedance mismatch hardware, said controller  
6 to adjust the impedance mismatch hardware, wherein the controller to determine whether  
7 a telephone loop is capable of carrying Digital Subscriber Line service.

1           2.     The system of claim 1, wherein the impedance is resistive, capacitive or  
2 inductive impedance.

1           3.     The system of claim 2, further comprising a termination impedance  
2 coupled to the impedance mismatch hardware.

1           4.     The system of claim 1, wherein the impedance mismatch hardware  
2 modifies one or more characteristics of a received signal, wherein the received signal is  
3 an echo of a signal transmit from the signal generator.

1           5.     The system of claim 4, wherein the received signal determines the  
2 capability of a subscriber's loop to carry Digital Subscriber Line service.

1           6.     The system of claim 4, wherein the controller is a fuzzy inference system  
2 controller.

1           7.     The system of claim 6, wherein the fuzzy inference system controller  
2 adjusts the impedance of one or more components in the impedance mismatch hardware  
3 to modify one or more characteristics of the received signal.

1           8.     The system of claim 7, wherein after the received signal is modified to a  
2 maximal value, a time between the transmit signal and received signal is used to  
3 determine a length of the telephone loop and other loop characteristics.

1           9.       The system of claim 8, wherein the length of the telephone loop and other  
2 loop characteristics are used to determine if the telephone loop is capable of carrying  
3 DSL service.

1           10.     A method, comprising:  
2                   transmitting a first signal;  
3                   receiving a second signal, wherein the second signal has an amplitude; and  
4                   adjusting one or more impedances to amplify the second signal amplitude  
5 using impedance mismatch hardware.

1           11.     The method of claim 10, further comprising:  
2                   calculating a time delay from the amplified second signal amplitude; and  
3                   wherein the impedance mismatch hardware couples to a fuzzy inference  
4 system controller.

1           12.     The method of claim 11, further comprising determining loop length, loop  
2 taps, and insertion loss from the time delay.

1           13.     The method of claim 12, further comprising determining whether a  
2 telephone loop is capable of carrying Digital Subscriber Line service from the loop  
3 length, loop taps, and insertion loss.

1           14.     An article comprising a storage medium storing instructions that when  
2 executed by a machine result in:  
3                   transmitting a first signal;  
4                   receiving a second signal containing an amplitude, wherein the second  
5 signal is an echo of the first signal; and  
6                   adjusting one or more impedances to amplify the second signal amplitude.

1           15.     The article of claim 14, wherein the instructions when executed also result  
2 in:  
3           determining whether the second signal amplitude is an amplified value;  
4           calculating a time delay from the amplified value; and  
5           adjusting the impedances by fuzzy inferencing.

1           16.     The article of claim 15, wherein the instructions when executed also result  
2 in:  
3           determining loop characteristics from the time delay.

1           17.     The article of claim 15, wherein the instructions when executed also result  
2 in:  
3           determining loop length, loop taps, and insertion loss from the time delay.

1           18.     The article of claim 17, wherein the instructions when executed also result  
2 in:  
3           determining whether a telephone loop is capable of carrying Digital Subscriber  
4 Line service from the loop length, loop taps, and insertion loss.